

THE JOURNAL OF THE BRITISH AMATEUR TELEVISION CLUB

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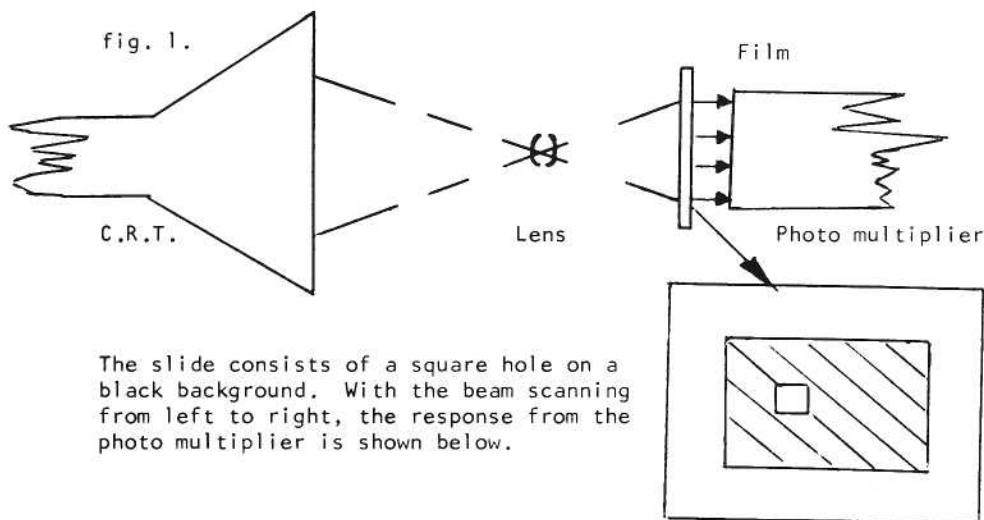
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CQ TV
N°69

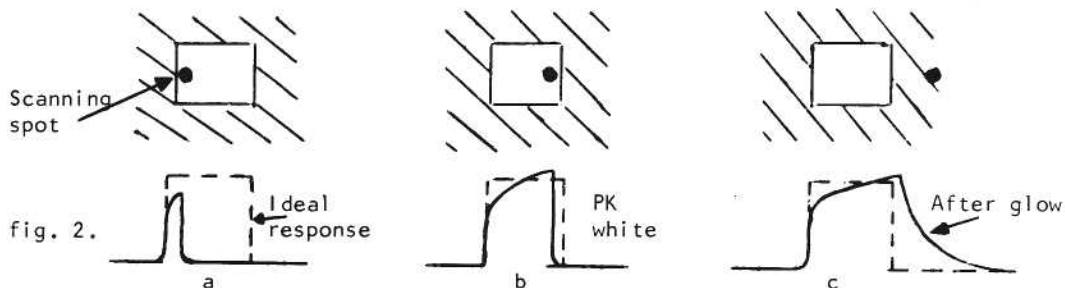


AFTER GLOW

Phosphors when illuminated by a beam of electrons exhibit a storage effect long after the beam has passed a particular spot. To understand the effect of this property, assume that we have a flying spot scanner as in fig. 1.



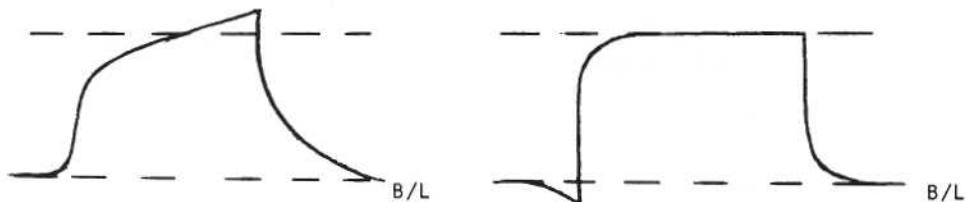
The slide consists of a square hole on a black background. With the beam scanning from left to right, the response from the photo multiplier is shown below.



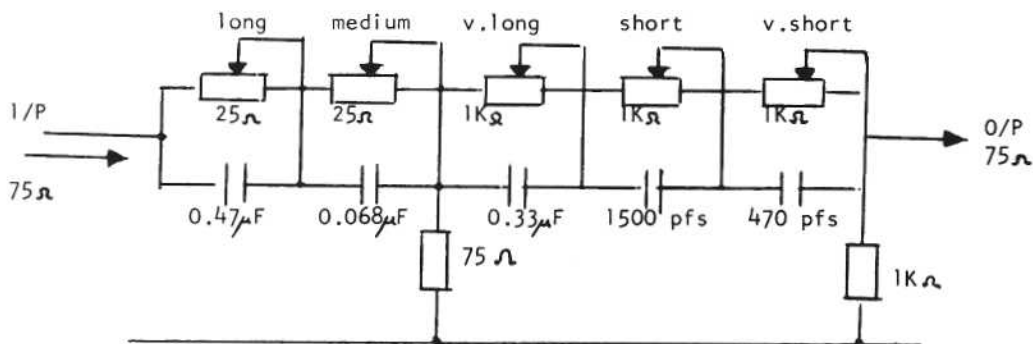
In fig. 2c, the distortion to the waveform is apparent as tilting of one side of the wave form only. The streak is above black level and shows as a brightness increase, this is particularly noticeable.

Streaking effects can be long or short term, it is therefore necessary to have more than one correction circuit. Ideally we would like to correct just one side but this is difficult to do with simple circuitry. Instead we tilt the whole waveform in the opposite direction.

This type of correction results in part of the waveform going below black level, but this fault cannot be seen on the monitor



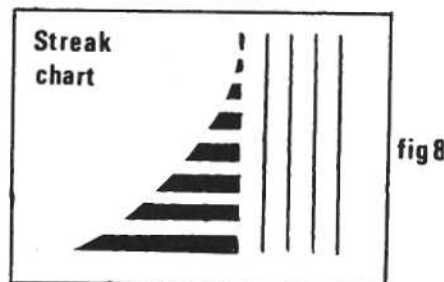
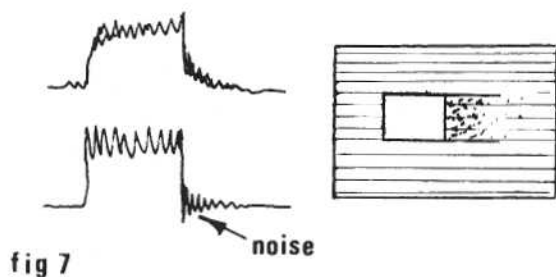
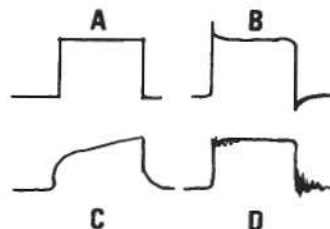
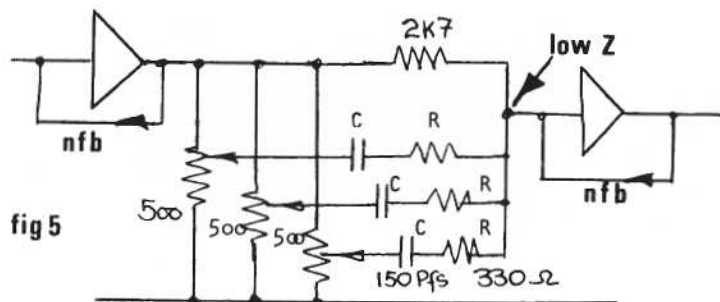
A suitable circuit for such a corrector is drawn below.



Some interaction of the controls is inevitable, but with a little patience good results can be obtained.

With more effort on the part of the constructor, there is another method capable of superior results. The diagram fig 5 contains two video amplifiers, one with a low output Z the other has a low input Z. When signal A is applied as a square wave it would be distorted as in B, when the photocell signal is applied the o/p is a fairly good square wave. Suitable values of C and R in the arms will give the appropriate long or short term correction.

After glow produces more output from the photocell, and noise increases as more light enters a cell resulting in considerable uncorrectable noise. This noise is further added to by the rising frequency response of the corrector.



Adjustments to after glow are most simply made by making a chart as in fig. 8. A pen and ink drawing on white paper, then photographing to produce the negative will give a good slide for the purpose. Placing the slide in the F.F.S. and viewing the output on a picture monitor, increase the monitor brilliance slightly to see any signal below blacklevel, then adjust until the after glow merges with the grey background. Some compromise is often necessary.

If after all adjustments have been made some errors still exist, it may be due to imperfect focusing of the scanning spot. Steps should be taken to ensure that it is a circular and not an oval spot on the raster.

ATV DEMONSTRATION

AT
HANWELL

Robert Skegg - G6ADJ/T was asked to put on a show of ATV by the Ealing and District Club at a model engineering exhibition held at Hanwell, at the end of October last.

Eight amateur bands were operated by the Ealing and District Club on their stand, and it was felt that ATV would also be of interest. It was decided not to attempt 'off the air' reception due to there being no local /T station.

A closed circuit demonstration was set up comprising of two cameras, a low power Band 1 modulator, miles of coax and several commercial TV sets, which were scattered around the Exhibition Hall. One camera was a one inch vidicon with normal and telephoto lenses, mounted on a fixed tripod. The other was the one that can be seen in photo 'A'.

It has a half inch vidicon and is completely self contained, requiring only mains in and giving composite video out. It is mounted in a standard cine camera 'shoulder mount' and is supported by 'yours truly'.

Slung under the camera on rubber cords is a Sony Micro TV receiver which is used as a monitor. The whole assembly is portable and fed with mains and RF for the monitor, and video return, via 100 feet of cable allowing the 'roving eye'



Photo A.

Photo by permission of King & Hutchings Ltd.



to walk around the exhibition. Assisting in the picture is PETER SMITH G3UPW, who supplied all the TV sets.

On the TV in the foreground is the "roving eye" as seen by the other camera. Picture quality was better than illustrated, the TV set being about four feet out of the focal field of the photographic camera.

Robert also operates G6ADJ/T from ACTON with 150 W peak white E.R.P. at 150 feet ASL. The standard used is 405 line, 2:1 interlace, positive modulation. Operating frequency is 438.75 Mc/s, sound is available on 2 metres, but he usually tunes 70 cm for calls or reports.

The station is usually on the air on the London ATV activity night (Tuesday) and also on Thursdays, from 8 p.m. B.S.T.

* * * * *

Surplus Television Equipment

From time to time the Club is offered items of surplus television equipment from various commercial organizations. As a quick decision over the purchase of such items usually has to be made, members who are seeking a particular type of equipment are invited to write giving details of their requirements to the Club Secretary, who will endeavour to see that they are informed of any offers received which might be of interest to them.

Price Change

Would members who wish to order Vidicon Tubes, please note that there has been an increase of 10/-d on these and that they are now £10..10..0d each., this being the price with which we are charged.

4½ Inch Image Orthicon

GRANT DIXON of Kyrles Cross, Peterstow, Ross-on-Wye, Herefordshire, would like to hear from any member who either has or is contemplating building, a camera using 4½" image orthicon tubes.

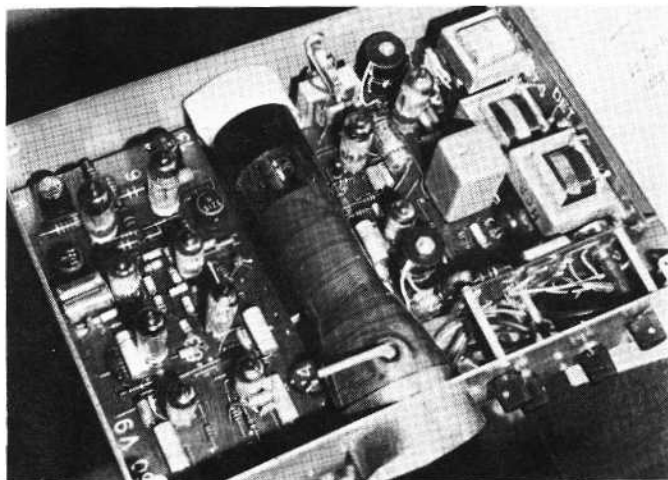
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SSTV



Prof. Franco Fanti, I1CLF of Bologna has sent some photographs of himself and his equipment. The picture below shows his slow scan monitor which uses a 3FP7 as the display tube.

Franco, who is very active on SSTV, has made several successful contacts with Canadian and American amateurs. He would like to contact SSTV amateurs in Europe.



Prof. Franco Fanti, I1CLF,
via A. Dallolio n.19
40139 Bologna,
Italy.



Cat - 70

- WHAT ? - A two day convention on Amateur Television.
- WHY ? - To mark the 21st Anniversary of the British Amateur Television Club.
- WHEN ? - Saturday 25th and Sunday 26th July 1970.
- WHERE ? - Churchill College, Cambridge.

P R O G R A M M E

- | | | | |
|--------------------|---|------------------------------------------------------------------------------------------------------------------------|--------------------------------|
| Friday evening | - | Registration
Get-together | |
| Saturday morning | - | Registration
Exhibition opens
Lectures, films and video tapes
Visit to TV transmission equipment manufacturer | |
| Saturday afternoon | - | Lectures, films and video tapes
Visit to TV transmission equipment manufacturer | |
| Saturday evening | - | Convention Dinner | |
| Sunday morning | - | Registration
Amateur station visits
Films
Videotapes | (a) by car
(b) over the air |
| Sunday afternoon | - | B.A.T.C. Business Meeting (Members only)
Tea
Farewells | |

The programme is provisional, but the dates are definite.

To enable the parties to be kept to a reasonable size, two visits have been arranged to the TV equipment manufacturer, taking place on Saturday morning and Saturday afternoon.

BRITISH AMATEUR TELEVISION CLUB 21st ANNIVERSARY CONVENTION

CHURCHILL COLLEGE

CAMBRIDGE

25th-26th JULY 1970

To celebrate the Club's 21st Anniversary, it has been decided to hold the 1970 Convention in Cambridge.

Arrangements have been made for facilities to be provided by Churchill College, and a number of rooms have been reserved.

Although the Convention is primarily intended for B.A.T.C. members, we do extend a warm welcome to anyone interested in amateur television. Ladies will also be most welcome.

Cambridge

Cambridge is well served by trains from London (Liverpool Street and King's Cross stations), and the journey takes about 70 minutes.

The City and Colleges are too well known to require description.

Churchill College : The Convention Centre

Churchill College is situated beside the Madingley Road, about $\frac{1}{2}$ mile from the city centre.

The College is a very modern one, and offers excellent Convention facilities. The main meetings will be held in the Wolfson Hall which seats some 230 persons in comfort, and is extremely well supplied with audio and lighting equipment.

Accommodation

Single rooms in the College will be available for the Friday and Saturday nights, 24th and 25th July 1970. Those wishing to stay only one evening, or to attend during the daytime only, are welcome to do so, but it is hoped that the majority will be able to stay at least one night.

Single rooms only are available. However, adjacent rooms will be arranged wherever possible.

Catering Arrangements

Breakfast, morning coffee, lunch, afternoon tea and dinner will be available by ticket only. The first meal will be dinner on Friday evening, and the last meal in College will be afternoon tea on Sunday.

Bar facilities will also be available during the usual licensing hours.

CAT-70 RESERVATION FORM (continued)

B.A.T.C. Convention, Churchill College, Cambridge.

July 24th, 25th, 26th, 1970.

Cash from overleaf

.....

MEALS FOR NON-RESIDENTS

I require dinner on Friday evening at 17/6d per person.	Number of persons-	.....	.....
I require morning coffee and biscuits on the Saturday @ 1/6d per person.	Number of persons-	.....	.....
I require lunch on the Saturday @ 10/- per person.	Number of persons-	.....	.....
I require afternoon tea on the Saturday @ 1/6d per person.	Number of persons-	.....	.....
I require morning coffee and biscuits on the Sunday @ 1/6d per person.	Number of persons-	.....	.....
I require lunch on the Sunday @ 10/- per person.	Number of persons-	.....	.....
I require afternoon tea on the Sunday @ 1/6d per person.	Number of persons-	.....	.....

TOTAL CASH:

In payment for the items which I have marked, I enclose a cheque/postal order/ money order for £ or its equivalent

CAT-70 RESERVATION FORM

B.A.T.C. Convention. Churchill College, Cambridge.

July 24th, 25th, 26th, 1970.

Please complete as applicable (block capitals please), and return as soon as possible to D.S. Reid, 71A Rose Valley, Brentwood, Essex; in any event not later than the 15th June 1970.

NAME CALL SIGN

ADDRESS

.....

.....

.....

TELEPHONE NUMBER

CONVENTION PROGRAMME

CASH

Conference Registration fees.

15/- per member, £1. for non-members.

(Conference fees are not applicable to ladies)

I wish to take part in a visit to a local amateur TV station (space permitting - first come, first served)

YES / NO

I wish to visit a local TV transmission equipment manufacturer

YES / NO

first served)

I wish to visit a local TV transmission equipment manufacturer	.....	YES / NO
I will be accompanied by a lady	.....	YES / NO
If accompanied by a lady, would you like to see a programme arranged for the ladies	.....	YES / NO
I require tickets for the Convention Dinner @ £1.12..6d per person (gratuities included)	.....	YES / NO
Wine Service will be available at extra cost. ..	.....	YES / NO
I can assist with transport to and from local amateur TV stations	.....	YES / NO
If the answer is "YES" to the previous question, how many seats can you provide? ..	.....	.....

RESIDENTIAL ACCOMMODATION

Please note that fees include bed, breakfast, morning coffee, lunch, afternoon tea and dinner, except for the Convention Dinner on Saturday evening. They also include 10% for gratuities. Single rooms only are available, however adjacent rooms will be arranged wherever possible.

I require accommodation including dinner on Friday evening to afternoon tea on the Sunday @ £7..10..0d per person.	.....	.....
I require accommodation including lunch on Saturday to afternoon tea on the Sunday @ £4..10..0d per person.	.....	.....

Cash

SIGNED DATE

If travelling to the Convention by road, please give your vehicle registration number

EXHIBITION OF AMATEUR EQUIPMENT

Please give a brief description, including the size, of the equipment that you plan to bring and exhibit. I will require 240 volt A.C. mains supply: YES / NO.

Details of any special facilities required:

ALL EXHIBITORS (AND ONLY EXHIBITORS) WILL QUALIFY FOR A
SPECIAL PRIZE DRAW. DETAILS OF THE PRIZE WILL BE ANNOUNCED LATER.

Further reservation forms available upon request from D.S. Reid, 71A Rose Valley,
Brentwood, Essex.

Exhibition of Amateur Equipment

We want the Exhibition to be truly representative of all aspects of amateur television, and aim to have a really big display of gear to celebrate the 21st Anniversary of the Club.

As always, we prefer equipment to be in working action so that it can be demonstrated, but static exhibits are nevertheless most welcome.

This appeal is directed to EVERYONE with amateur television equipment - don't leave it to the other man - please bring YOUR equipment along.

ALL EXHIBITORS (AND ONLY EXHIBITORS) WILL QUALIFY
FOR A SPECIAL PRIZE DRAW. DETAILS OF THE PRIZE
WILL BE ANNOUNCED LATER.

Visits to Local Amateur Television Stations

Plans are being made to arrange visits to some local stations so that members can make the acquaintance of the operators and gain first hand knowledge of their equipment.

Obviously, the parties must be kept fairly small, and final arrangements for joining such parties will be announced later.

Reception of Local Stations

Happily, the level of interference in Cambridge is extremely low compared with that in London. Demonstrations of reception in Churchill College from several amateur TV stations will show the results which can be achieved over the air.

Club General Meeting

The General Meeting of the British Amateur Television Club is the only event not open to non-members. It will take place in the Wolfson Hall on Sunday afternoon.

Technical Lectures

Lectures on topics of interest to the amateur will be presented in the Wolfson Hall from time to time.

Film Show

It is planned to show films of general technical interest from time to time during the Convention.

Convention Dinner

A Dinner will be held in Churchill College on Saturday, 25th July 1970 at 7.45 p.m. for 8.15 p.m.

Dress will be informal, and the ladies will be most welcome.

Ladies

Ladies will be most welcome to attend the Convention and the Convention Dinner; rooms in College can be provided.

It is planned to arrange a Ladies' Programme, if sufficient interest is shown.

Car Parking

There is a large car park along the private College Road, and cars may also be left in Storey's Way at night.

C L U B S A L E S I T E M S

The following items are available to Club Members only.

Order via: C.G. Dixon, Kyrles Cross, Peterstow,
Ross-on-Wye, Herefordshire.

Vidicon yokes for transistor circuitry	....	£ 6..10..0d. (pp U.K.)
Paxolin vidicon base	....	3..0d.
Second grade separate mesh vidicons	....	£10..10..0d.
Monoscope tubes (pot luck - no choice of pattern	....	£ 7.. 0..0d.
"C" mount lens flanges	....	8..6d.
BATC lapel badges	....	3..6d.
BATC lapel badges with Call Sign (delivery 6 - 10 weeks)	....	5..6d.
BATC stick-on silver/black emblems	....	1..0d.
Notepaper and envelopes - per 100 sheets	..	15..0d.
35mm filmstrip of 10 editions of CQ-TV	....	15..0d.

Circuit Notebook No. 3

Vidicon Blanking Generator.

In a vidicon camera it is necessary to provide blanking of the vidicon scanning beam during the line and field flyback.

If the blanking is applied to the vidicon modulator grid, a pulse of about 75 volts negative is required or if the blanking is applied to the cathode, 20 volts positive is sufficient.

For valve cameras these pulses of large amplitude are readily obtainable, but in a transistor camera with only a 9 - 12 volt H.T. line there is difficulty in obtaining the required pulse amplitude, particularly in the case of field blanking.

The circuit to be described provides a positive-going blanking pulse approximately equal to twice the supply line voltage, and is suitable for vidicon cathode blanking.

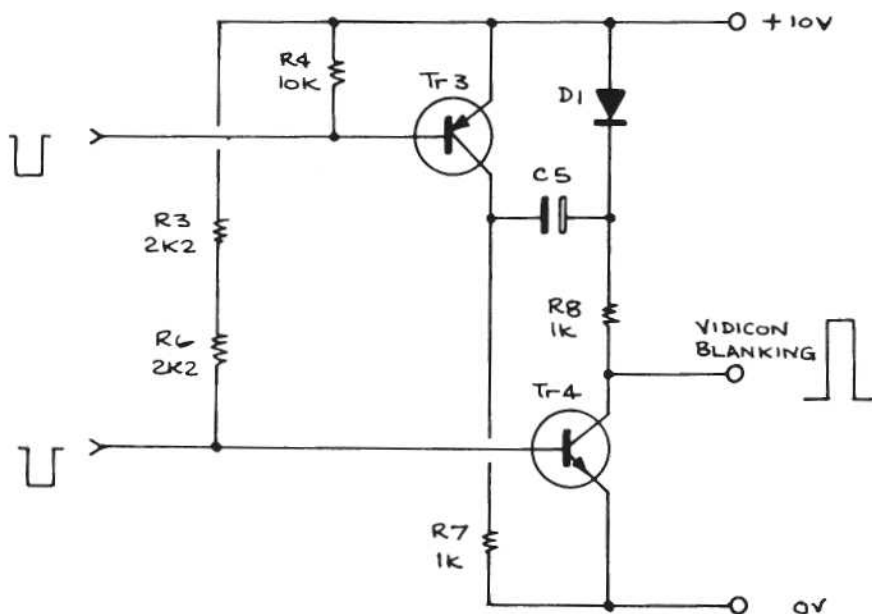


Fig. 1

Circuit Operation.

A simplified circuit is shown in Fig. 1.

During the active line period, Tr3 is biased off by R4 and is non-conducting, Tr4 is conducting due to base current through R3 and R6.

Tr4 collector and the vidicon cathode are at zero volts, Tr3 collector is at zero volts causing C5 to be charged through D1 to almost 10 volts.

During the blanking period -ve going pulses at the bases of Tr3 and Tr4 cause Tr3 to turn hard on and Tr4 to turn off. The absence of current through R8 causes the collector of Tr4 and the vidicon cathode to move up to the potential of D1 cathode. However, due to Tr3 conducting its collector is now at 10 volts, and the charge stored in C5 lifts the cathode of D1 to about 20 volts, thus producing a 20 volts positive going pulse at the vidicon cathode. After the blanking period, any loss of charge from C5 is replaced by current flow through D1 and R7.

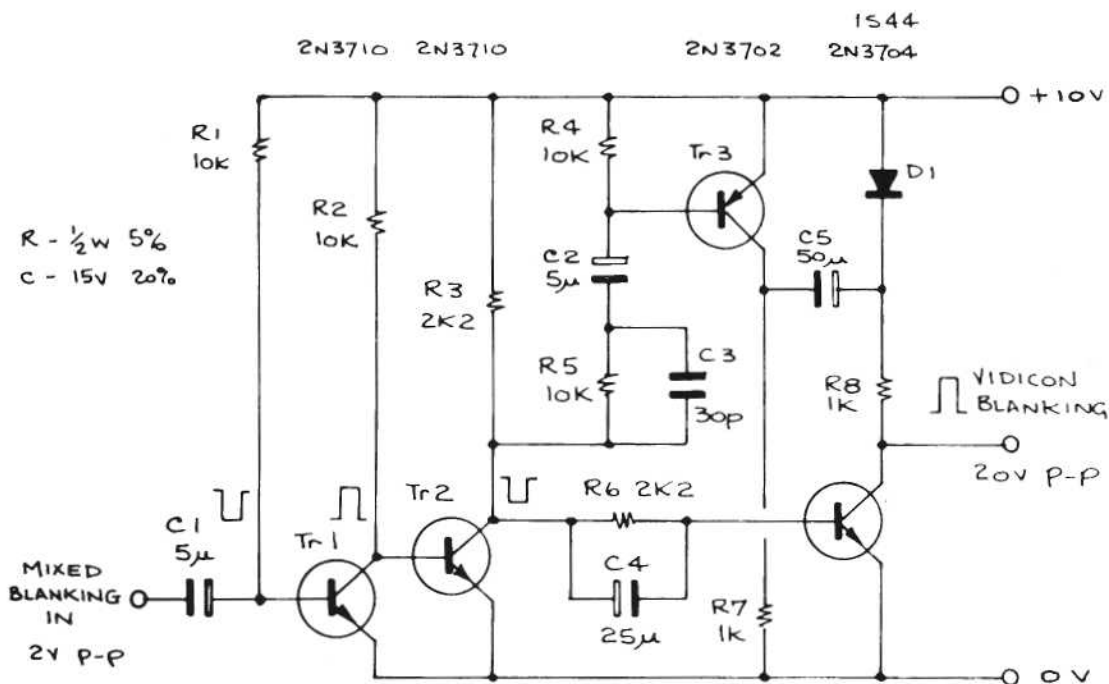


Fig. 2

The full circuit is given in Fig. 2 and shows the driving circuit for Tr3 and Tr4. Tr1 accepts negative-going mixed blanking of 1 - 4 volts p-p. If only separate and field is available, a simple mixing circuit is required and is shown in Fig. 3.

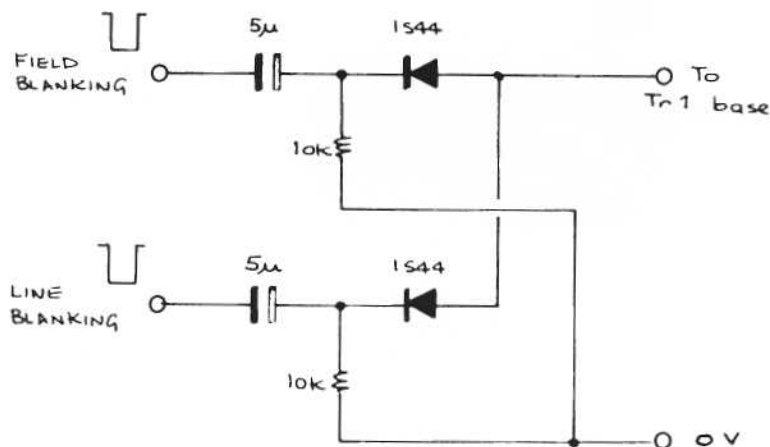


Fig. 3

J. LAWRENCE. GW6JGA/T

SUBSCRIPTIONS

As stated in the last issue of CQTV, a free year's subscription is being given to all members who joined the Club prior to the 1st July 1969. In some cases members will have been credited with the free year's subscription in 1969, whilst others will be for 1970.

Where subscriptions are now due once again, a subscription reminder will be found enclosed with this issue.

For those members whose subscription has already been paid for both 1969 and 1970, a refund will be made and no action will be necessary by the member.

As for 1969, no receipts will be issued for payments received by Banker's Order unless one is specifically requested.

RSGB EXHIBITION

The Royal Horticultural Societies New Hall was again the location of the R.S.G.B. International Radio Engineers and Communications Exhibition.



Most of the B.A.T.C. pictures were presented from a videotape machine. The recorder in photograph No. 3 providing the 625 line pictures, and a Philips machine shown in photograph No. 4 giving the 405 line pictures.

The complete recording system comprised of a four channel mixer unit; Tony Pattinson's pulse unit, camera and monitors; and one other vidicon camera.

David Mann G6OUO/T, and John Ware G6RSA/T, were invited along as guests and asked to ad-lib for a few minutes on a suitable topic of their own choice.

Thus from a very apprehensive beginning, a programme was developed which provided interesting and amusing material which was played back during the remainder of the Exhibition.

Ian Waters G6KKD/T, who is a member of the Fenn net, provided a complete pre-recorded programme from his own and other stations in the net. G6NOX/T and G6REH/T, two stations very familiar to European amateurs were represented on the videotape. The machine used for this was the latest Philips 'VRT LDL 1000' which used a half inch tape, the quality and performance of which was excellent. This machine being no larger than a standard audio recorder.



Thanks must go to Ian and other stations involved who gave up their valuable time to make this very well presented recording.



Pulse distribution was provided by our expert on these matters - TONY PATTINSON. His versatile unit had a great deal of use on this stand. It is hoped to make the unit a topic for CQ Tv in the near future.

Thanks also to everyone who helped to set up the stand and run the complex system throughout the four days.

STAND ORGANISER

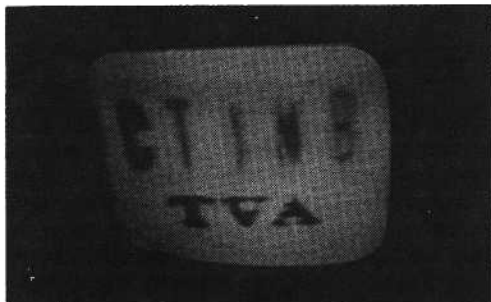
P. Blakeborough. G6ACU/T.

ATV Round the World

Members of the B.A.T.C. often receive letters from A.T.V. amateurs abroad telling of new stations and contacts. One such letter was from Werner Frassine of Austria. Werner plans to make video transmissions on 70 cms., his frequency for video will be 434MHz, and sound 439.5 MHz (5.5 MHz apart according to the C.C.I.R. standard).

To date he has constructed a vidicon camera which is linked to a Philips Video recorder, type EL 3400 and three modified TV sets.

Congratulations to Roberto CTINB/T to be the first ATV station in Portugal. Roberto transmits on 431.25 MHz using a QQE06/40. Plans are to improve the antenna from the cubical quad to something offering DX possibilities.



Members Adds

WANTED A 19" or 25" colour tube, tri-gun type for testing and setting a colour television. Will consider one in any condition. Please reply to: M. Stott, 27 Dene Garth, Ovingham, Prudhoe, Northumberland.

FOR SALE Two C.B.S. type 7817 Photomultiplier tubes. No gen available. ALSO Valve sync. pulse generator as per CQTV No. 32/41. Offers invited.

VIDEO MONITORS in working order, 14" and 17" @ £13.10.0 each, collected. Apply: M.J. Sparrow, 64 Showell Lane, Penn, Wolverhampton, Staffs.

WANTED Vidicon Camera.

FOR SALE Two vidicon tubes in very good condition.

Please contact: C.P. Hirst, 21 Meadow Park, Westham, Kirkham, Lancs. PR4 3BL.

HEATHKIT RA1 Amateur Bank Receiver. Frequencies covered:-

28--30 MHz, 21--21.5 MHz, 14--14.45 MHz, 7--7.3 MHz, 3.5--4.0 MHz, 1.7--2.0 MHz.

Single I.F and half lattice filter at 1.6 MHz. This receiver is in excellent working order, and has been aligned and tested by Daystrom. £30. or near offer.

Apply: D. Cotterell, 49 Mountpark Road, Ealing, London W.5.

FOR SALE one broadcast quality vidicon tube (separate mesh): £10.

One Sony 140AB4 C.R.T. (as used in the Sony Micro TV). Ideal for view finder: £8.

Line out put transformer and scanning yoke for the above tube: £2.

Apply: D. Bridgen, 13 Rectory Road, Southall, Middlesex.

HELP WANTED

The Club would be pleased to hear from any members who would care to lend a hand with any of the Club's book-keeping and secretarial duties. Offers of assistance which would be greatly appreciated, would be made to the Secretary, c/o 64 Showell Lane, Penn, Wolverhampton, Staffs.



THE BRITISH AMATEUR TELEVISION CLUB